

REMARKS

In reply to the Office Action of November 14, 2003, the applicant submits the following remarks. Claims 1, 2, 4, 9-11, 25 and 26 have been amended. Claims 27-30 have been added. No new matter has been added. Claims 1-11 and 21-30 are now pending after entry of this amendment. The applicant respectfully requests reconsideration in view of the foregoing amendment and these remarks.

Objections to the Drawings

The Examiner objected to the drawings under 37 CFR 1.83(a) as requiring the drawings to show every feature of the invention specified in the claims. The Examiner finds that the limitation to a second material being deposited on selected portions of a first material to form a pattern must be shown or the limitation canceled from the claims.

Claims 9 and 26 have been amended to remove the limitation to a pattern. The applicant respectfully points the Examiner to Figure 3 of the application for support for the claims as currently amended, and to page 11, lines 3-9, which states that "the outer layer 191 can be deposited on selected portions of the external flexible membrane 118 to form a pattern of coated and non-coated regions".

The drawings are also objected to because the outer surface (192) of the inner portion (180) and substrate receiving surface (198) as taught in the specification on page 5, lines 2-4, were not clearly shown. Figs. 1 and 2 have been amended to show the outer surface (192) of the inner portion (180) and the substrate receiving surface (198). The applicant believes these amendments address the Examiner's concerns.

Section 112 Rejections

Claims 1 and 10 were rejected under 35 U.S.C. § 112, ¶ 2, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

The applicant has amended claims 1 and 10 to address the Examiner's concerns.

### Section 103 Rejections

Claims 1-5, 7-11 and 21-26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,056,632 (Mitchel) in view of U.S. Patent No. 6,627,098 (Custer). The applicant respectfully traverses the rejections.

Amended claim 1 recites a carrier head having a flexible membrane extending beneath a base to define a chamber and provide a mounting surface against which a substrate may be positioned. The mounting surface holds the substrate and includes a low adhesive material to which the substrate does not readily adhere.

Mitchel teaches a carrier head for semiconductor wafer polishing having a wafer carrier membrane (Abstract, lines 1-19). The wafer carrier membrane may be made from multiple sheets of material connected into a single resilient sheet (column 7, lines 31-33).

Custer teaches a planarizing machine for planarizing microelectronic device substrate assemblies having a backing plate with a bladder attached to the backing plate (Abstract, lines 1-7). The backing plate 170 is of metal or another hard, rigid material (column 5, lines 44-47). A first surface 172 of the backing plate 170 facing a bladder 190 is covered with a film or coating 188 of a low-friction or non-slick material (column 5, lines 51-57). The low-friction coating 188 protects the bladder 190 from being damaged, such as by tearing or wearing against the backing plate, during planarizing (column 5, lines 60-62 and column 6, lines 5-9). The perimeter of the bladder 190 can be damaged during vertical displacement of the substrate assembly 12 which compresses the bladder between the backing plate 170 and the substrate assembly 12 (column 5, lines 62-67 and column 6, lines 1-5).

The applicant respectfully submits that there is no motivation to combine the teachings of Mitchel and Custer to provide the claimed subject matter. Although Custer teaches a low-friction film, Custer's film is on the backing plate 120, not the bladder 190. Moreover, Custer does not suggest or disclose that it would be desirable to apply a low friction coating to a bladder. Custer teaches a method for protecting a bladder from damage caused by the backing plate during planarizing. There is no suggestion in Custer that applying a low friction coating to

a substrate mounting surface of the bladder would protect the bladder from damage caused by the backing plate during planarizing. Further, the low friction coating described by Custer does not hold the substrate. Thus, there is no motivation provided to create a flexible membrane with a mounting surface that holds a substrate and includes a low adhesive material to which the substrate does not readily adhere.

Moreover, the applicant submits that combining the teachings of Mitchel with the teachings of Custer would result in a carrier head having a backing plate of a rigid material covered with a low friction film attached to a bladder having multiple sheets of material connected into a single resilient sheet.

Because there is no motivation to combine the teachings of Mitchel with the teachings of Custer to provide the claimed subject matter, the applicant submits that no *prima facie* case of obviousness has been made and that claim 1 is allowable as amended. New claim 27 depends directly from claim 1 and is allowable for at least the reasons stated above.

Amended claim 2 recites a flexible membrane that has a core of a first material and an outer layer of a second material that has a lower adhesion to a substrate than the first material. Amended claim 10 recites a flexible membrane including an inner portion formed of a first material and an outer portion formed of a second material that has a lower adhesion to the substrate than the first material. Amended claim 11 recites a flexible membrane having a core of a first material and an outer layer of a second material formed over the core, where the second material has a lower adhesion to the substrate than the first material.

For the reasons discussed above, the applicant submits that there is no motivation to combine the teachings of Mitchel with the teachings of Custer to provide the subject matter of claims 2, 10 and 11.

#### Amendments to the Specification

Items 192 and 198 were previously only described in the specification in relation to Fig. 2. These items have been added to Fig. 1 to show their relative placement with respect to the

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items in Fig. 1. The description of Fig. 1 has commensurately been amended. No new matter has been added.

No fee is believed to be due. If, however, there are any charges or credits, please apply them to Deposit Account No. 06-1050.

Respectfully submitted,

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